Call for Presentations

THERMOSENSE XL
VENDORS PRESENTATIONS AND RECEPTION XIV
What's New in Infrared Sensing & Imaging Hardware and Software?

This session is now in its 14th year and has become very popular. This venue provides an early opportunity for exhibitors to highlight their latest technology and products to the Thermosense and IR community, prior to the opening of the DCS-2018 exhibits. This also enables the technical conference attendees to better prioritize their activities when visiting the exhibits. It is a casual meeting with ample time for questions and answers. Looking for state-of-the-art in future generation of IR imagers radiometric and non-radiometric and IR image processing systems and all other hardware and software involved in the Infrared applications. Your company must be an exhibitor at Defense + Commercial Sensing Expo 2018 to be part of this event. Any DCS-2018 exhibitor offering products or services related to infrared sensing or imaging, photonics can participate. The content -topics of submissions have no restrictions: Technical –Commercial within what is Infrared Imaging Hardware, Optics, Accessories, and Software. Slots are limited and available on a first come first-served basis. The list of participating vendors and the content of their presentations will appear in the final program of the SPIE DCS-2018 symposium.

Primarily audience background:

Innovative infrared systems & applications researchers, Innovative infrared applications engineers & professionals, Advanced optics engineers, Photonics & imaging researchers, Photonics Engineering, Infrared systems engineers, Calibration & Test engineers, Academics, Physicists, General Exhibition-Only Visitors, Exhibitor Representatives (DCS-2018)

- Basic rules:
  - Be Exhibitors at SPIE—: SPIE Defense + Commercial Sensing at Orlando Gaylord Palms Hotel – 2018
  - All exhibitors are eligible to present. - To aid vendors, see below lists of topics that may be of interest to the audience (pages 2 to 6)
  - First-come first-served basis -- Slots are limited

- Guidelines:
  - Abstract - Manuscript: Not Required
  - Presentation on site: Flexible. Power Point other - Allowed to bring and show equipment to the audience
  - Length of presentation around (10'-15’)
  - Contents: Technical –Commercial - No restrictions
• **Vendor application information required:**
  - Legal / commercial name of the company - booth number (SPIE DCS-2018)
  - Title of the presentation
  - Name of the presenter, affiliation, position in the company
  - Contact information of the presenter
  - Brief summary of presentation content (one line)

If you are interested in participating or have any questions, please contact:

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**General and specific topics, hardware components characteristics & software that may be of interest to the audience:**

(The content -topics of submissions have no restrictions within what is Infrared Imaging Hardware, Software accessories testing equipment etc. Technical –Commercial at SPIE DCS-2018 Exhibits. The following list of products is only for presenter orientation: Hardware and software-related topics, etc. and applications detailed below are non-exclusive)

- **Blackbodies:** Collimators – Cavity blackbodies – Extended area blackbodies – Differential blackbodies – Target projectors – Portable calibration devices – Vacuum temperature blackbody – Primary Standards for Temperature Calibration – Temperature metrology. - Target projectors for sensor test and characterization capability from ~0.30 um to ~14 um


- **Detectors – (Cooled) - PtSi - InSb - HgCdTe (MCT) QWIP (Quantum Well), JT Detectors.**

- **Detectors:** High Operating Temperature. (HOT) IR Sensors to Improve SWaP (Size, Weight, and Power) New generation of IR sensors: nBn sensors & SLS (strained layer superlattice) – T2SL (Type II Super Lattice) --- sensors temporary work ~130 Kelvin (K) to ~175 Kelvin (K)

- **Detectors (SWIR) InAs - InGaAs Wavelength range of ~ 1 to ~3 µm.**

- **Detectors:** Photo conductive PbSe (lead selenide uncooled - cooled) – PbS (lead sulfide) a standard SWIR semiconductor detector. Pyroelectric infrared detectors.

- **Detectors Uncooled microbolometers:** Vanadium Oxide (VOx) and Amorphous Silicon (α-Si)

- High Speed & Definition Cameras (VIS/ NIR /SWIR / MWIR / LWIR) resolution, frame rate, and sensitivity. Transferring the data off the camera. Camera Synchronization. External camera Triggering Control. Start and stop acquisition options (camera -software)

- Imaging Spectro radiometer--Micro-Spectrometers--Hyper Spectral Imaging system --Instruments for measurement: Directional reflectance / Hemispherical emissivity --Spectral / Total directional emissivity / Bidirectional reflectance (BRDF) spectral/total --Directional hemispherical transmittance.

- Infrared, multispectral, and hyperspectral cameras / systems new standards in: Temporal resolution (Hz) - Spectral Resolution (wavenumber/ wavelength intervals) Spatial Resolution (IFOV-pitch) Thermal Resolution (NETD) radiometric resolution

- Infrared Cameras: Environmental Housing/ Enclosures & Connectors – Waterproof/Dustproof (IP/NEMA) Environmental protection Shock / Vibration standards ISO - IEC. Rear connectors appropriate for environmental standards requirements. Homologation and validation of IR systems for extreme environmental conditions: ice, spray water, salt fog, sand, extremely high and low temperatures, altitude, very low or high humidity.

- Infrared fibers optics, General applications of IR fibers, Types of IR fibers.

- Infrared sensors for Industrial & Medicine Thermometry - Nano thermometry - Non-Contact Infrared Temperature Measurement - Line scanners – Pyrometers


- Miniature LWIR cameras (microbolometers) - Miniature SWIR cameras (InGaAs) - Miniature Payloads

- Modules—OEM (Cool – Uncooled) - Cores and Components.

- Mobile Smart Phones with Thermal imaging devices.

- Opto-mechanical designs from UV to VIS and NIR, to the thermal regions – SWIR, MWIR and LWIR.
Remote Operated Vehicles (ROVs) - land-based remotely controlled vehicle equipped with cameras for hazardous areas.

Semitransparent materials -- Infrared windows, Filters - Infrared windows coatings -- Infrared Mirrors: flat, conics, aspheres -- Reflectors.


Terahertz (THz) electronics, sensors, and cameras.

Unmanned Aerial Vehicle (UAV) Stabilized EO gimbal based visible & thermal infrared. Specifications Software-Controlled flight aerial monitoring - Airborne Imaging Systems Data integration Thermal, GPS location, Visible others.

Video engine for cooled Thermal Imaging Systems.

Wireless systems IR Systems -- Space qualify IR - Outdoor Scanners, -- IR Remote Sensing systems.

Aerial and Portable Home auditing infrared systems - Aerial Thermography. Roof IR inspections

Artificial intelligence in IR systems involve

Automotive night vision camera systems (cars & trucks & buses & rail)

Concealed surveillance IP Thermal Infrared Camera

Customize Infrared systems: Hardware & Software

Drones with heat-tracking cameras for multiple applications (6)

Enhanced Vision System (EVS) for aircraft landing in limited visibility environments (*)

Electromagnetic (eddy current) thermography (NDT): Hardware and Software

Energy audit. Facilities, buildings: infrared cameras and software

Forest Fire Fighting Infrared integrated systems (2)

Fire Fighting with Short Wave Infrared (SWIR+ LWIR) Cameras (2)

Handheld (pocket instrument) scanners near-infrared spectroscopy for almost instant fit: nutritional information & fingerprint & quality from food we daily eat

Handheld ultraviolet imaging system

Hidden Security Infrared Cameras for various applications

Hyperspectral earth observation systems (space-qualified)
✓ Hyperspectral imaging system (NIR/SWIR) for Plastic sorted - recycling (PP, PE, PVC, PET, PS)
✓ Hyperspectral imaging system for monitoring: landfill biogas emission (methane), natural & liquefied gas leaks greenhouse gases. (4)
✓ Infrared cameras systems for Fire Fighters (hand held) – Fire prevention (2)
✓ Infrared systems (fixed) for continuous Volcanoes Monitoring (3)
✓ Infrared systems for detect & Identification and quantify gas leaks (+ emissions). Gas compounds Acids, Hydrocarbons, Organics, SF6, others. (4)
✓ Infrared systems for Explosion Characterization
✓ Infrared systems for Forensic latent evidence applications. Include Ultraviolet Forensics Imaging Systems
✓ Infrared systems for maritime guidance in foggy, smoky, and misty environments
✓ Infrared systems for Stress and Fatigue Analysis
✓ Infrared system for imaging & temperature measurement of glassmaking
✓ Infrared systems (+SWIR) for Wild Life: animal detection & hunting
✓ Infrared systems used in Aircraft Landing Assistance systems (*)
✓ Infrared Thermographic Imaging Systems for Medicine -Veterinarian -Biology. Disease screening & evaluation
✓ Infrared Thermography systems in Electronics - Printed Circuit Boards
✓ Integrated Imaging systems for Harbors’, Rail station and Airport protection (1)
✓ Integrated Vision Systems - Fusion imaging – (UV/VIS/NIR/SWIR /MWIR/LWIR)
✓ Infrared Signatures of rocket, missiles – flares.
✓ Laser Rangefinder and laser pointers for different applications with an infrared camera
✓ Ladle Check Refractory Infrared Monitoring System & Slag Detection System
✓ Lock-in thermography systems: Hardware and Software
✓ Military target infrared signature acquisition and analysis. Thermal Weapons Sight
✓ Multispectral and Hyperspectral imaging cameras for Mineralogy and Geology Mapping
✓ Multispectral and Hyperspectral imaging cameras for Agriculture classification product
✓ Multi Sensor surveillance systems applications: for borders, coastal and critical infrastructure (1)
✓ Multi Sensor surveillance systems qualify for high-shock environments
✓ Pan/Tilt unit with different performance levels for infrared systems
✓ Pulse (flash) Thermography systems (NDT) hardware and software
✓ Pulse phase thermography (PPT) systems (NDT) hardware and software
✓ Smart sensors: over heat or Δt scene input that make sensor to takes some predefined action
✓ Sensors and thermal cameras for space-restricted applications
✓ Solar photovoltaic cells Thermographic Testing: modules, panels, and arrays. (lightning, storms, overheating defective cells, panel hotspots others)
✓ Solar photovoltaic cells SWIR InGaAs inspection test for uniformity (Cell efficiency- Electroluminescence Inspection)
✓ Systems for Precision General Agriculture & Farming (VIS + SWIR + Thermal)
✓ Systems for Thermal Inspection of gas, steam, and wind Turbine Blades
✓ Systems for validating and characterizing Near Infrared/ Short-Wave Infrared (NIR/SWIR) cameras
✓ Surveillance & Military mid and long range integrated systems
✓ SWIR in Non-destructive Analysis of Underdrawings in Art Objects
✓ Terahertz (THz) Passive & Active-- Imaging through objects (security) & NDT
✓ Thermal Imaging and Thermometry in metal industry: rolling mill, die forming and wire drawing machine
✓ Thermal Imaging and Thermometry in the automotive industry (cars manufacturer) Car robot spot weld monitoring (5)
 Thermal Imaging & Thermometry in everyday life - massive use (household appliances, kitchen, backyards, gardens, perimeter fences)
 Thermal Imaging and Thermometry related with Internet of Things (IoT)- Smart cities and Smart buildings
 Thermal imaging cameras/systems for Airport fever screening (Influenza - Imported Dengue)
 Thermal imaging cameras/systems for Battery Technology Development
 Thermal imaging cameras/systems for control Storage Depots and Warehouse
 Thermal imaging cameras/systems for improve Hypersonic Aerodynamic Designs
 Thermal imaging cameras/systems for monitors District Heating Networks
 Thermal imaging cameras/systems improving comfort for Athletes Footwear
 Thermal imaging cameras/systems Intelligent Transportations Systems & Tunnels- Verify road conditions
 Thermal imaging cameras/systems(sensors) for Traffic Control: vehicle - bicycle - pedestrian
 Thermal imaging cameras/systems for control resistance Spot Welding (RSW) and Seams Welding (5)
 Thermal Imaging for Microscopy – Infrared Microcopy systems
 Thermal imaging cameras for different Robots systems & applications
 Thermal Imaging the future in Biometric Security
 Thermal imaging in Dams and Bridge Deck monitoring. Example Cracks in the concrete (1)
 Thermal infrared hyperspectral imaging for characterization of the volcanic emissions (3)
 Thermal infrared NDT in microelectronics & micromachining
 Thermal infrared systems combined with other NDT inspections (ultrasound, X-ray, terahertz, visual)
 Thermal, multispectral, and Hyperspectral imaging cameras/systems for preserve Cultural Heritage
 Thermal, multispectral, and Hyperspectral imaging cameras Pollution Monitoring and emission Characterization of Smokestacks
 Thermography Systems (portable) Electrical: faulty connections / overloaded circuits -- Mechanical Equipment: warm motors/- bearing failures
 Thermography Systems (portable) Fluid Systems pipe temperatures --line blockages - tank levels
 Thermography Systems (portable-fixed) for Boilers, Furnaces, and Refractory
 Thermography Systems for boosting product quality in Thermoconforming process
 Thermography Systems for Industrial Automation- Optimize products, Process control (machine vision -includes SWIR) & Industrial workers safety
 Thermography Systems for Monitoring Specific Industrial Plants/Utilities – Proactive Maintenance -Condition Monitoring
 Thermography Systems for Monitoring Water Course Pollution
 Thermography Systems (fixed) Rotary Kiln Scanner
 Thermography-Kit for detection of trapped water in Honeycomb -Mobile NDT system Inspects Composite
 Transient (large pulse) Thermography systems (NDT) Hardware and Software
 Unmanned Aerial Vehicles Systems: for monitor buildings, infrastructure, gas leaky, land and crops, wildlife, geothermal environments (6)
 Unmanned Aerial Vehicles Systems: for security, Search & Rescue(SAR) - Support Firefighters (6)
 Ultraviolet Imaging System for Skin and Sunscreen
 Vibro Thermography Systems: Lock-in vibrothermography - Burst vibrothermography: hardware and software
 3D advances thermal imaging systems. Three-dimensional thermal images with surface temperatures in them

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